



Our Natural History

The first regulations to restrict hunting were set in 1859.

1883 & 1884: Carp, black bass, and brook trout were stocked in the Brandywine.

Seasons for all game animals were established in 1893.

If you purchased a Resident Hunting License in 1915, you paid \$1.00; a Non-Resident paid \$10.00. A Fishing License was \$3.00.

The first laws protecting muskrats were enacted in 1921.

1923 – A patrol boat was purchased for use in marine waters.

The Dog License Law went into effect in the summer of 1925. It applied to Kent and Sussex Counties only.

1932 – The first public bulletin was issued describing the work being done with articles on the conservation of game and fish.

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Fish and Wildlife News

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A Message From the Director

Patrick J. Emory

Despite its small size Delaware harbors a diversity of wildlife and habitats within its borders from the Atlantic Ocean coastline to the Piedmont border with Pennsylvania. More than 125 different types of habitat have been identified including coastal marine waters and brackish marshes, tidal and non-tidal freshwater streams and wetlands, and upland forest and meadows. Laws protecting Delaware's wildlife date back as early as 1859. The Fish and Game Commission (forerunner of the Division of Fish and Wildlife) was very successful in managing game animals and sport fish, then endangered species and the

habitats that sustain all of them. As successful as this work has been, it's no longer sufficient. The growing list of declining wildlife, the escalating pace of land development, the emergence of new threats like invasive species and climate change all point to the urgent need to expand the scope of wildlife management. We must work to conserve a variety of habitats across the landscape rather than focusing on individual species. This will result in "keeping common things common" at the same time it continues to protect those species that are rare. In recognition of this need, the Federal government

has begun providing new funding to the states for truly comprehensive wildlife management. Delaware has prepared a "Wildlife Action Plan" to describe its efforts to conserve "species in greatest need of conservation" while addressing the "full array of wildlife" and wildlife-related issues. We want to increase your knowledge of our wildlife conservation practices and develop an understanding of habitats. By conserving a diversity of wildlife and habitats we will enhance your quality of life, support ecological services, supply economic benefits, and provide you with recreational opportunities.

Whose Habitat Is It Anyway?

Dawn Webb



See this cartoon? If we don't do something now, this is the world we will be leaving to our kids and grandkids. A world where wild things are crowded out by more and more roads, malls and housing developments. **Loss of habitat is the greatest threat to Delaware's wildlife.**

Help is on the way! Delaware's new Green Infrastructure initiative is bringing together public agencies, private landowners, educators, and conservation organizations to

conserve and restore the state's natural support system—the interconnected network of waterways, wetlands, woodlands, wildlife habitats and other natural areas. Clean air. Clean water. Enriched habitat for wildlife. Increased recreational opportunities. Improved health and quality of life. A better connection to nature and a sense of place.

Please help us help wildlife. The choices we make today will impact how we live tomorrow!

Fisheries



Chances are that by the time you read this, the new summer flounder length limit will be in effect in Delaware. Because Delaware was considerably under the federal quota last year, the Division was able to offer our fishermen a suite of options that included a modest liberalization of our minimum size limits. During the public com-

ment period, option 2, namely 17 inches coupled with four flounder per day received the most support from our fishing public. Although there were two options for a 16.5 inch minimum, these options were considered risky in that we might exceed our recreational quota of 114,000 flounder in 2006 and have to endure a penalty in 2007. Still, the option selected for this year puts us closer to New Jersey's limits, even though the quota setting process currently used by the coastal management agencies has made it nearly impossible for DE and NJ to get to-

gether on comparable flounder size limits. The new size limit goes into effect on May 10, and there will be no closed season in Delaware in 2006. Until then the flounder limits in place for the past several years, namely 17.5 inches and four fish per day remain in effect. There was a small change as well to black sea bass regulations in that the existing minimum length of 12 inches is now measured from the jaw with the mouth closed to the tip of the tail, not including the filament on top of the tail.

Roy Miller



Spraying the marshes for mosquitoes during the 1930s.

Wildlife

With the help of Vision Air Research, Inc. of Boise, Idaho, the wildlife section conducted an aerial infrared white-tailed deer population survey this winter. The survey was conducted December 6-18, 2005 and covered a total of 17 deer management plots encompassing 174,000 acres of land. Plots were selected to provide an accurate representation of the habitat types found within each survey zone. Survey flights were conducted at night flying

back and forth across the 2 mile by 8 mile sample plots. Deer detection rates in each plot varied by habitat type and ranged from 100% in agricultural fields to 80% in coniferous forests. The number of deer were counted per sample plot and then expanded to generate a deer population number for the specific zone. Zone numbers were then summarized for all 17 deer management zones to generate a deer population number for the

state. Preliminary information from the survey indicates that Delaware had a post hunting season population of approximately 38,456 deer.

Greg Moore



"Protecting Fish,

Wildlife and

Habitat-

Then, Now and for

the Future"

Mosquito Control



Spring has arrived; therefore Mosquito Control staff will be taking to the air in helicopters just above the treetops releasing liquid *Bti* to kill mosquito larvae residing in

wooded wetlands. The *Bti* rains down through the tree canopy reaching flooded larval habitat on the forest floor. Woodland pools are ephemeral in nature and are a result of the precipitation that fell during the late fall through early spring. They can be shallow leaf-lined pans or very deep pools. This ecologically unique habitat is our first source of mosquitoes in the spring. *Aedes canadensis* is an aggressive biting; long-lived species that utilizes these wooded wetland habitats. Their

eggs overwinter and remain dormant until the spring arrives. Our woodland control program traditionally starts in late March and proceeds through mid-April. Aerial control is limited by the temperamental spring weather and leaf-out that could prevent the product from reaching the water surface. *Bti* is a bacterial insecticide that is bio-rational in nature and very target specific. Approximately 10,000 acres are treated through the woodland control program each year in Delaware.

Rebecca Orth



Counting Osprey chicks

Meet The Staff

Roy Miller

In 1999, the Atlantic States Marine Fisheries Commission called for states to adopt strict American shad management measures and to develop programs aimed at restoring stocks to fishable levels of abundance. The Division of Fish and Wildlife decided to embark on a restoration program that involved stocking American and hickory shad fry into the Nanticoke River to help jump-start the restoration process. This phase would require a dedicated long-term effort in order to be successful. Mike Stangl was given the responsibility of developing and implementing this phase of the restoration program. Any successful fish hatchery relies and depends on staff that is willing to devote long hours every day of the week during critical periods of the all-too-brief spawning season. Mike and his full time staff of 'none' worked tirelessly through

out the spring including weekends and into the night when needed in order to make the newly developed hatchery program a success. He developed an effective working relationship and won the support of staff employees, commercial fishermen and volunteers in order to develop a successful program in restoring shad to the Nanticoke River system. Mike thoroughly evaluated several different techniques which are used throughout the region. He developed the best hatchery protocol most applicable to the Nanticoke River strain of American shad. He designed and constructed a system which eliminated many of the false starts and pit falls that newly developed and constructed hatcheries are frequently faced with. The result; an increased egg and larval fish production which almost completely eliminated the mortality of the brood

fish. This allowed for the live release of 98% of the wild adults. Mike also developed the proper methods of capture, transport, culture, incubation, marking, and release techniques that minimizes mortality and stress, and maximizes the chances of successful restoration while staying within a meager budget of funds and manpower. Instead of reaching his first year goal of 100,000 larval shad released, he more than doubled it with 268,000.

On March 9th, 2006, Mike Stangl received the Division of Fish and Wildlife's Employee of the Year for 2005. Mike and his wife Greer reside in Greenwood with their daughter and twin boys. He has been employed with the Division of Fish and Wildlife for 15 years.



Volunteer In The Spotlight

Jack Knowles of Seaford, has contributed his time and knowledge of American shad to the Division of Fish and Wildlife's Shad Restoration Project on the Nanticoke River. His knowledge of the local river system as well as shad life history is a valuable asset to the Division. He's volunteered many hours with Fish and Wildlife staff in the field, netting adult shad to be used as brood fish to obtain eggs for the Nanticoke Shad Hatchery.

Jack also donates his time assisting with the electrofishing of adult shad for brood stock collection. While division staff is busy on the river collecting fish, he tends the transport tank, in which adult shad are placed for transport to the Hatchery. He also checks water quality condi-

tions and adult fish for signs of stress within the transport tank. At the Shad Hatchery, Jack applies the proper practices and techniques to ensure success relative to raising healthy American shad for stocking in Nanticoke River tributaries. He routinely assists in ensuring maximum fish health by treating live eggs and removing dead eggs to prevent fungal growth. He stocks American and hickory shad unsupervised into Nanticoke River tributaries when instructed, often using his personal vehicle.

When Jack tends the transport tank located streamside, the general public will often stop and ask questions. With his personable nature and vast experiences with

shad fisheries, Jack represents the Division professionally while interacting with the public. He adequately fields questions at the hatchery site as well.

Jack Knowles' service to our Division has been invaluable. With gratitude and sincere appreciation, he was presented with the 2005 Volunteer of the Year Award for the Division of Fish and Wildlife on March 9th, 2006.

Photographed Above: Jack Knowles, left and Mike Stangl, right.

DIVISION OF FISH AND WILDLIFE ADVISORY COUNCILS

The Council on Wildlife and Freshwater Fish

Chairman

David Healey

Members

Richard Berry

Edward Montague

Garrett Arai

Ted Palmer

Alden Townsend

Terry Higgins

Raymond Burris

Meets last Tuesday of most months in the DNREC auditorium at 7:30 pm.

The Advisory Council on Tidal Finfisheries

Chairman

Dan Seamans

Members

Holly Firuta

Brian Hoffercker

Lawrence Foley

Acie Mankins

Clyde Roberts

Bernard Pankowski

Meets third Wednesday of most months in the DNREC auditorium at 7:00 pm.

The Advisory Council on Shellfisheries

Chairman

Leonard Voss

Members

Lawrence Foley

Steven Copp

Patrick Gaffney

Virgilio Pacelli

Charles Auman

Paul Satterfield

Meets when chairman calls for a meeting.

Partners In Conservation

Delaware's National Wildlife Refuges: Where Wildlife Comes First



Stretched along the eastern coastline of Delaware and covering 26,000 acres, the **Prime Hook & Bombay Hook National Wildlife Refuges** provide habitat for wildlife. Four-fifths of Bombay Hook and one-fifth of Prime Hook is tidal salt marsh with a mix of cordgrass meadows, mud flats, tidal pools, rivers, creeks, and tidal streams. Over two-fifths of Prime Hook is impounded freshwater marsh which is managed through water level manipulations to promote annual plants such as wild rice, beggars tick, and millet. Both ref-



uges also support timbered swamps and freshwater creeks and upland areas of forests, agricultural fields, and fields of herbaceous vegetation.

This diversity of habitats is reflected in the diversity of animal life. Both refuges are managed for migratory birds, including tens of thousands of waterfowl arriving in the fall and

migrating songbirds and shorebirds in the spring and summer. The refuges also provide habitat for tall wading birds, ospreys, and bald eagles. Deer, red foxes, beavers, grassland birds, are found on these refuges, as well as many species of turtles, fish, insects, non-poisonous snakes, frogs, and salamanders. The endangered Delmarva fox squirrel is also found at Prime Hook.

Visitors can enjoy these natural resources through many recreational opportunities. Wildlife observers and photographers can enjoy the beauty of nature from nine walking trails, five observation towers, photography blinds, and along State roads crossing through the refuges.



Hunters flock to these areas for deer, waterfowl, and upland game. Visitors can enhance their understanding of natural resources through festivals, lecture & environmental education programs, and interpretive displays and activities. Bombay Hook also offers visitors a 12-mile auto tour and Prime Hook offers two ponds and a seven-mile creek for freshwater fishing and canoeing opportunities.



Prime Hook and Bombay Hook have a long standing history of partnering with the Delaware Division of Fish & Wildlife. A few of the many examples of these conservation highlights include endangered species management (*Delmarva fox squirrel*), enhancing hunter education opportunities (*Young Waterfowlers program*), improving wildlife habitat (*Phragmites control*), maintaining hunting structures (*grassing duck blinds*), promoting outreach and environmental education (*"Kid's for Conservation" poster contest, creating exhibits for the State Fair, participating in BOW program and at festivals, youth fishing programs*), providing wheelchair hunts (*Wheelin' Sportman Goose Hunt*), and managing wildlife areas.



Bill Jones, Prime Hook NWR
and
Tina Watson, Bombay Hook NWR



Welcome to the National Wildlife Refuge System!

Founded in 1903, this system of lands today encompasses 545 national wildlife refuges, 37 wetland management districts, about 3,000 waterfowl production areas—all on nearly 100 million acres.

The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

In Delaware, Prime Hook in Milton and Bombay Hook in Smyrna provide habitat for a diversity of wildlife and opportunities for visitors to enjoy them!

Bombay Hook NWR

Established: 1937

Acreage: 15,978

Contact Info:

2591 Whitehall Neck Road

Smyrna, DE 19977

(302) 653-9345

<http://bombayhook.fws.gov>

Prime Hook NWR

Established: 1963

Acreage: 10,136

Contact Info:

11978 Turtle Pond Road

Milton, DE 19968

(302) 684-8419

<http://primehook.fws.gov>

Enforcement



The Delaware Division of Fish and Wildlife's Enforcement Sec-

tion has initiated its' first canine program. Agent Casey Zolper, a Sussex County resident, has volunteered to take the intensive 400 hour training course required to start the canine program.

Agent Zolper began his career with Fish and Wildlife as a seasonal intern. His work ethic and dedication to the job earned him a full-time position four years ago. After learning about canine program in other states, Casey began researching the possibility of beginning a program in Delaware. Unlike traditional police canine

units, a dog will be trained specifically to meet the mission of the Division of Fish and Wildlife.

Bill Wolter of Owens Shooting Preserve kindly donated the male black lab which Casey named "Warden". Warden will be trained to track humans, locate evidence such as shotgun shells, and locate different species of wildlife; dove, turkey, waterfowl, deer, fish, and shellfish. Warden will also assist with search and rescue. Training is being conducted by the Florida Fish and Game Department.

Capt. James Passwaters



Our majestic national bird is flying high over much of its former range and may soon be off the endangered list. Forty years ago there were only 417 nesting pairs in the lower 48 states. Today, eagle numbers are strong with over 7,000 breeding pairs spread across the lower 48. Delaware is home to 39 bald eagle nests.

Did You Know...

...that the Delaware Bay and inland marshes are vital to several long distance migratory shorebirds? For populations of the Red Knot, the Bay Estuary is the only rest stop between South America and Arctic breeding grounds, and they stop here to refuel and gorge on a superabundance of horseshoe crab eggs laid along coast. Today shorebird species are in decline, and sound scientific information is needed to base decisions for the conservation and management of horseshoe crabs, shorebirds and their habitats. Each



spring, the Delaware Shorebird Project- including volunteers and local and international researchers- works hard to study several species of shorebirds stopping in the Bay.

From early May to early June, this team is busy surveying, catching and banding approximately 2,500 shorebirds and sampling horseshoe crab egg abundance and distribution- seven days a week with long hours on the water and in the sand. What's it worth? Collected data furthers our knowledge of shorebird migration patterns, helps us discover the wonders of these amazing animals and guides resource management for the preservation of this natural phenomenon.

Annie S. Jacobs

*"Treat the Earth
well. It was not
given to you by
your parents. It
was loaned to you
by your children."*

-Kenyan Proverb

The "WILD" Calendar of Events

April 8th—Youth Conservation Field Day (Greenwings) and judging of the Jr. Duck Stamp, DE Duck and Trout Stamps at Owens Station in Greenwood, DE

April 22nd & 23rd—Camp Awareness Youth Camp in Lewes, DE

April 22nd—Earth Day Celebration at Killens Pond State Park

May 4th—DE State Envirothon Challenge at the St. Jones Reserve

May 20th—Migratory Bird Festival at Bombay Hook

May 27th—Horseshoe Crab-Shorebird Festival in Milton and at Prime Hook.

June 10th—Statewide Youth Fishing Tournaments

June 10th & 11th—Free fishing days, statewide

June 25th—Melvin B. Rust Kids Day and JAKES Event, Dagsboro

July 20th—29th -DE State Fair

August 12th—Lower Chapter of the NWTF Women In The Outdoors Event, Dagsboro

August 18th—20th—Becoming An Outdoors-Woman Workshop in Lewes, DE

October 1st—Coast Day in Lewes, DE

October 14th—Waterfowl Festival at Prime Hook

November 11th—Flying WILD Workshop at Bombay Hook Wildlife Refuge



"Can I put the band on the duck's leg?"
Youth learned about banding waterfowl at the annual Greenwing Event.

Delaware's Good Nature Depends on You



DEPARTMENT OF NATURAL
RESOURCES AND
ENVIRONMENTAL CONTROL



Delaware Division of Fish & Wildlife
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Dover, Delaware 19901



The Delaware Division of Fish and Wildlife is one of five divisions under the Department of Natural Resources and Environmental Control. We are responsible for managing the State's fish and wildlife resources and enforcing laws and regulations designed to protect and conserve these resources. In addition, the Division offers hunter and boater safety education programs as well as environmental education and public outreach.

Contact Us!

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**We're also on the
Web!**

www.dnrec.delaware